Qualcomm Developer Project C865DK-SmartShop2.0

Project Submission

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| **Project Title**\* | **C865DK-SmartShop2.0** | |
| **Images**  *Upload up to 5 images of your project*  *Please submit/send the original JPEG/PNG files for all images included in the document* | C865DK.png  C865DK.png [alt tag: “C865DK-SmartShop2.0 using the C865DK which is designed with Qualcomm® Snapdragon™ SM8250 processor as development board.”] **Type-C.png**   |  | | --- | | **typc** |   [alt tag: “**using the type-c line to develop on** C865DK **development board.** ”]  [alt tag: “use mini-hdmi line to connect display **.**”]  IP-Camera.png  ip-camera | |
| **Description**\*  *High level description of the project* ***(75 words or less)*** | Using C865DK, the data of 1080 camera is collected by RTSP, decoded and use AI algorithm to do age gender estimation, then the rectangular frame of face with age and gender is drawn and output to HDMI display. | |
| **Objective**   * *What inspired you to create this project?* * *What is your desired outcome?* | 1.Show the powerful decoding power of C865DK  2.Include the full use of Neural Processing SDK for AI SDK , help developers load models into the GPU/DSP/CPU of Qualcomm chips through Neural Processing SDK for AI SDK, how to set the input and output of DLC file.  3. Use Snapdragon Profiler tool to analyze GPU, memory, Network and so on. | |
| **Materials Required / Parts List / Tools** | Part Name | Link to purchase |
| C865DK | https://www.thundercomm.com/app\_en/product/1598010487118378 |
| Type-c line | https://detail.tmall.com/item.htm?id=44425281296&ali\_refid=a3\_430582\_1006:1103572855:N:8BFxSxK119dzkfQCc2yGI2us815vvcUHETWnj5g1swo=:6399b40850a40201c56536531a885bcf&ali\_trackid=1\_6399b40850a40201c56536531a885bcf&spm=a230r.1.14.11 |
| IP Camera | https://item.jd.com/ |
| Neural Processing SDK for AI | https://developer.qualcomm.com/software/qualcomm-neural-processing-sdk |
| Models | https://github.com/ThunderSoft-XA/SmartShop1.0/tree/main/age-gender-estimation/tensorflow\_2\_dlc/age\_gender\_estimation.dlc |
| dlib | https://github.com/tzutalin/dlib-android |
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| **Source Code / Source Examples / Application Executable**  *Link to open source / shareable code repository* | Description | Link |
| [Source Code](https://github.com/canyudeguang/Home_Automation) | [https://github.com/ThunderSoft-XA](https://github.com/ThunderSoft-XA/demo-Smart-Motion-detector)/C865DK-SmartShop2.0 |
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| **Additional Resources**  *List related links or resources such as websites, videos, presentations, or other materials* | Resource Title | Link or File Name (and provide file) |
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| **Build / Assembly Instructions** | Sample outline:   1. Overall design framework and Test environment construction method.   screenshot-20210322-212110.png   1. Software Build Instructions   Prepare a PC (Ubuntu 16.04/ window10/ MAC);   1. Install app to C865DK device   adb device; adb install SmarShop2.0.apk | |
|  | Sample outline:   1. How does it work?   Below are some usage instructions to test the project. Now let's introduce the SmarShop2.0’s workflow .  SmarShop2.0 application realizes the video and display that come from IP cameras decoding and use AI algorithm to do age gender estimation, then the rectangular frame of face with age and gender is drawn and output to HDMI display.  [Directory](C:/Users/user/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;) [structure](C:/Users/user/AppData/Local/youdao/dict/Application/8.9.5.0/resultui/html/index.html#/javascript:;) of project:  Main structure of java： ├── eBox //Main function directory│   ├── Activity //group-box control│   ├── Adapter│   ├── AI // AI task to do age gender estimation│   ├── Config //Configuration module│   ├── Constants│   ├── Data //some AI data struct and Sqlite usage│   ├── Gl //display module│   ├── Log│   ├── Model│   ├── Utils //some common functions│   └── VIew //display interface├── gateway //some info struct│   ├── data│   └── utils├── libyuv //the color conversion├── rtsp //rtsp client module└── util //common functions Function support by cpp：  ├── Affinity //CPU binding functions  ├── BasicUsageEnvironment  │   └── include  ├── groupsock //live555 feature  │   └── include  ├── libbitmap //same bitmap functions  ├── libyuv //mage color space conversion  │   └── libyuv  │   ├── build\_overrides  │   ├── docs  │   ├── include  │   │   └── libyuv  │   ├── infra  │   │   └── config  │   ├── source  │   ├── tools\_libyuv  │   │   ├── autoroller  │   │   │   └── unittests  │   │   │   └── testdata  │   │   ├── msan  │   │   ├── ubsan  │   │   └── valgrind  │   │   └── memcheck  │   ├── unit\_test  │   │   └── testdata  │   └── util  ├── liveMedia //live555 feature  │   └── include  ├── RtspClient //live555 feature  │   └── include  └── UsageEnvironment //live555 feature  └── include | |
| **Usage Instructions** | Sample outline:   1. Install app to C865DK device   adb install SmarShop2.0.apk   1. Start app.   1)connect wifi/wired network, start “edgebox client” app  ic_launcher.png  2)Click Settings and click “+” to add RTSP URL  Screenshot_20210323-101538.png  3)Back to start playing and do age gender estimation  **1.png**  4)Check Traffic Statistics  Screenshot_20210323-101600.png  5)Use Snapdragon Profiler tools  2021-03-23 10-32-20屏幕截图.png | |
| **Contributor(s) Info**  *Feel free to include headshots!* | Name | Title  Company |
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Filters and Tags for QDN projects page

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| **Platform/Hardware** | ☐ CSR 101x/102x Bluetooth  ☐ DragonBoard 410c  ☐ mangOH Red/Yellow | ☐ MDM920x LTE for IoT  ☐ QCA-402x WiFi/BLE/Zigbee  √     Turbox™ C865 Development Kit |
| **Software Tools** | ☐ 3D Audio Plugin for Unity  ☐ Adreno GPU SDK  ☐ Hexagon DSP SDK | √ Neural Processing SDK for AI  √ Snapdragon Profiler |
| **Operating System** | √ Android  ☐ Linux  ☐ ThreadX RTOS | ☐ Ubuntu Core  ☐ Windows 10 IoT Core |
| **Cloud Services/Platform** | ☐ Sierra Wireless AirVantage  ☐ Gizwits Cloud Platform  ☐ AT&T M2X  ☐ IBM Bluemix | ☐ IBM Watson IoT  ☐ Microsoft Azure IoT  ☐ Amazon AWS IoT |
| **Skill Level Required** | √ Advanced  ☐ Beginner  ☐ Intermediate |  |
| **Areas of Focus** | ☐ 3D Printing & Modeling  ☐ Alexa Voice Service  ☐ Artificial Intelligence  ☐ Bluetooth  ☐ Computer Vision  ☐ Digital Signage  ☐ Education  ☐ Embedded  ☐ Gaming | ☐ Healthcare  √ IoT  ☐ Robotics  ☐ Security  ☐ Sensors  √ Smart Cities  ☐ Smart Home  ☐ Toys |

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